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AUTHOR Bretz, Randall G.
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ABSTRACT

As a new form of infrastructure is being developed across the vast prairie of Nebraska, electronic pioneers are leading the way to the information age. This paper describes some of those pioneers and their work. The University of Nebraska has been among the leaders in developing the Internet and applications for it. The university established one of the first regional computer networks in the Midwest and developed a network of extension educators that now has Internet connections in 81 of the 93 Nebraska counties. The Nebraska State Department of Education has also been a pioneer, providing Internet training to teachers and funding for Internet access in schools. Today, about half of Nebraska school districts have direct Internet connections, with the remainder using modems for access. Nebraska Educational Telecommunications, which has provided educational television and radio for over 40 years, has created NebraskaNet, bringing together the electronic activities of state agencies, the University, schools, colleges, and communities in an Internet service that is easy to locate and navigate. In addition, three partner communities are working with NebraskaNet to pilot models of community connection to and "presence" on the Internet. An initiative of the Nebraska Department of Economic Development offers rural communities an organizational model and a basic strategic planning process that enable them to accelerate and capitalize on expanded access to information. A description of the experiences of three Nebraska communities provides a perspective on activities related to information technology occurring across the state. (SV)

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Telecommunications for Rural America:

Lessons from Nebraska

Presentation for the Third Annual Conference on Rural Datafication

"Routing the Information Highway Down Main Street"

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The developing communications technologies offer rural America a unique opportunity to link to and participate in the global economy. Critical to that involvement is an increased understanding of what services currently exist and a community planning process to help implement a process for providing the National Information Infrastructure at the local level. Agencies, institutions and communities in Nebraska have seized the opportunity and are developing telecommunications task forces, writing strategic plans, training citizens, establishing nodes on the Internet and placing information on existing services. The lessons they have learned can be of benefit to others across the country as they struggle to electronically connect. This presentation includes lessons learned from Nebraska as the new pioneers of the electronic age provide leadership and direction to their state.

Primary author:

Randall G. Bretz
NebraskaNet
Box 83111
Lincoln, NE 68501-3111
402-472-3611
402-472-1785 (fax)
rbretz@unl.edu

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Early Pioneers

Even today, as you travel across Nebraska, signs of the early settlers are easy to find. Highway signs remind you of the Conestoga wagons which traveled the state so many years ago along the Oregon and other trails. In some places, even the wagon ruts are still visible. Many of the famous landmarks so well known to those early pioneers still remain including Chimney Rock, Windlass Hill and Scotts Bluff. Not long after the wagons came the rail roads which brought more people and goods and connected many small towns with markets for their agricultural products to the east and west. The rails were soon followed by highways which replaced the dusty roads created by the settlers in their wagons and on their horses.

As Nebraska was settled, there were many scouts who were the early explorers and leaders for those who would follow. Mari Sandoz, well known author from Nebraska, recorded the story of one such scout in her book Old Jules, the story of her father who helped many settlers find land and establish their homesteads in those early days.

Electronic Pioneers

Today, as a new form of infrastructure is being developed across the vast prairie of Nebraska, there are scouts of a different nature, perhaps best described as electronic pioneers leading the way to the information age. This paper describes some of those scouts and the work which they have been, and continue to do in Nebraska.

State Leaders

The University of Nebraska has been among the leaders in the development of the Internet and applications for it. The University early on realized the educational potential from networked computers and established MidNet as one of the first regional computer networks linking institutions throughout the midwest. The University of Nebraska Institute for Agriculture and Natural Resources (IANR) was home for early applications including AG Net which provided a model of networking beyond the campuses and directly into the homes of farmers and ranchers across Nebraska and eventually the entire nation. More recently, Jim Emal led an effort to connect County Extension offices in nearly every county in Nebraska. Initially a dial-in network, IANR has now implemented Internet connections to 81 of the 93 counties in Nebraska, placing computer information resources in the hands of the agricultural community and others through the Extension Educators in most counties.

Also among the scouts is Wayne Fisher of the Nebraska Department of Education. Starting in the late 1980's, Fisher traversed the state as an early pioneer in the use of the Internet for elementary and secondary education. Through workshops, seminars and often, individual sessions, Fisher helped thousands of Nebraska teachers see the educational potential of the Internet. Next came the Internet connection for the Department of Education including a toll-free telephone number for teacher and school system use. Phone bills in the

tens of thousands of dollars made Fisher and others at the Department realize that they had created tremendous interest among the elementary-secondary community. As a result, the Department of Education sought and received Legislative approval to expand the taxing authority of Nebraska's Education Service Units to provide funding for the development of Internet access for their client schools. Today more than 150 of Nebraska's 300 school districts now have direct Internet connections, with the remainder making access through modems. More than 10,000 teachers in the state (just over half the total number) have Internet ID's. This pioneering effort of the Department of Education is considered one of the leading activities nationally. As a result, schools, teachers and students are beginning to make use of the Internet for a wide variety of educational activities.

Nebraska Educational Telecommunications (NET), perhaps better known as Nebraska ETV, has been involved in electronically connecting Nebraskans for more than 40 years. Through its nine station educational television network, public radio network, satellite and microwave system, NET involves Nebraska government, the University, elementary-secondary schools and almost all post secondary institutions in its activities. The newest venture, NebraskaNet, headed by Randall Bretz, is a system which is bringing together the electronic activities of state agencies, the University, schools and colleges and communities in the state in an easy to locate and navigate Internet information service. In addition, three partner communities are working together with NebraskaNet to explore the potential of the Internet. Lincoln, Nebraska's capitol represents the spectrum of larger cities, Chadron in the far northwest corner of the state and home to Chadron State University represents the medium size cities, and Cambridge in the state's southwestern corner representing small communities are each working to solve the two main aspects of connection to the Internet and "presence" on the network. As the models are developed, additional communities in Nebraska will be included in the NebraskaNet project, thereby providing an ever growing opportunity for Nebraskans to take advantage of information age technologies. NebraskaNet is one of the CWEIS projects funded by the Corporation for Public Broadcasting and the US West Foundation.

Yet another pioneering effort has been led by Chris Hoy of the Department of Economic Development. During the past two years, Hoy has met with citizens in dozens of communities across the state in a project called "The Global Community Initiative." The basic concept is that rural communities stand to benefit in many ways from the digital revolution, but only if they can develop the capacity to understand and plan for this new way of accessing the world's information treasurers. The Global Community Initiative is an attempt to offer rural communities an organizational model and a process that, together, will enable them to accelerate the arrival of the promised benefits of the digital age. Communities are urged to form Information Technology Committees that are made up of people who have a passionate interest in the subject and are connected in some way to the major components of any mature community - health, education, government, business, etc. Additional members might be senior citizens, students, the city librarian, the telephone company manager and others.

The process is a basic strategic planning process coupled with an investigation

of all the relevant areas of information technology and telecommunications: current community assets (human and mechanical), future infrastructure, deployment plans, community needs, the regulatory environment, etc. Once the committee has done its initial work, it is in a position to list community goals, develop projects and evaluate opportunities. Currently, there are nearly 45 communities in Nebraska participating in this project. About 20% of them are producing technology-based strategic plans and/or concurrently developing projects such as community technology learning centers, community networks and other appropriate projects. The other committees are in various stages of evolution from initial formulation to active planning. The Department of Economic Development views this grass-roots process as successful and an excellent way to stimulate market interest, educate large numbers of users and empower rural citizens so they can make better choices, now and in the future, about the uses of information technology.

Community Leaders

A look at the activities in three communities provides us with the perspective of activities across the state. Aurora, a community of 4,000 in east central Nebraska on Interstate 80, was among the first involved in the Global Communities Initiative. In 1993, under the leadership of Gary Warren, Executive Vice President of Hamilton Communications, a task force in Hamilton County was created to address planning issues for information technology. This task force consisted of representatives from business, industry, technology, agriculture, health care, government, library and education. Since then, a strategic plan has been developed to encourage the use of information technology by residents of the country to enhance overall development and quality of life. This plan was written with input from the community and the task force.

The seven goals which the Information Technology Strategic Plan identified included:

- Two-way video connections among the school districts and other educational institutions;
- Multiple public access points to satellite downlink services;
- Public access to on-line services at a reasonable cost;
- Video conference site available for business and public use;
- Computer mail network and community bulletin board;
- Ongoing awareness programs about information technology;
- Foundation to fund information technology projects.

The mission statement guiding the task force planning process was as follows: "Our mission is to deploy and apply the latest information technology to better access, process, create and distribute that information both within and outside of our community; thus fostering improved educational options, health care service availability, employment opportunities, and an overall improved quality of life for our citizens."

Upon the completion of the strategic plan, the task force decided to host a telecommunications information demonstration session. Anticipating 30 or 40 on a cold February morning, the members of the task force were thrilled with the turnout of nearly 200 including representatives of most major businesses, the government, schools and health care facilities in the county.

In the shadow of Omaha, on the eastern edge of Nebraska, lies the town of Papillion. In mid 1994, the City of

Papillion introduced its multi-user Electronic Bulletin Board System known as the Papillion Community Link. Under the leadership of yet another scout, Tim Willett, the system allows local groups, clubs, organizations, churches, schools and individuals the ability to distribute information and schedules to area residents via computer and modem. The system also provides messaging capabilities to local government officials an any user or organization wishing to have an account on the system. The system also gives users access to the Papillion public library electronic catalog and CD-ROM based reference material. Access to the Internet is also available including e-mail, telnet, FTP, IRC and the World Wide Web.

The development of the system shows the vision of the Library Board and Town Council. Recognizing the need for the establishment of an electronic communication system and at the same time seeing the need to upgrade the city's computer capabilities, the two authorities joined efforts and hired Willett to pursue both goals. The system was turned on for public use in June 1994, and now averages nearly 300 calls a day with 60 hours of use from those calls and a user base of nearly 1200 clearly illustrating the strong interest in such a system by the residents of Papillion.

In the Republican River valley of western Nebraska, near the borders of Colorado and Kansas, Cambridge, a town of 1100, aggressively seeks to move into the information age. Here telecommunications pioneer Craig Schroeder works from the base of economic development to coordinate education, health care, government and business interests in seeking to employ the latest technologies connected to the rest of the world. The hospital, serving a large area around Cambridge, has been equipped with a two-way video room for meetings of all sorts and medical consultation with the University's Medical Center in Omaha and the Mayo Clinic in Minnesota.

Cambridge is also a pilot community with NET's NebraskaNet project. Community leaders see the potential of electronically connecting their community to the information highway and have provided a combination of community and grant funds to help make it happen. An open house, conducted at the Community Center in the fall of 1994 to demonstrate the education and information opportunities on the Internet attracted over 100 people during the late afternoon session and a public meeting in the evening. Schroeder sees economic potential as individuals connect with the world for education and businesses link with suppliers and customers across the country to leverage their purchase dollar and at the same time make products available.

Two other communities, Grant and Broken Bow, benefitted from a joint effort involving the University of Nebraska and the Department of Economic Development. The Internet Navigator project provided for the training and placement of University students in their hometowns for the summer. In each case, the students provided public education and met with businesses and other interested groups throughout the summer demonostrating the Internet and its benefits. One aim of the project, which has been awarded the 1995 Arthur D. Little Foundation national award for use of technology and economic development, was to show businesses how to take advantage of the Internet.

Lessons from Nebraska

The keys to the successful and pioneering developments in Nebraska include:

1. An ongoing education effort aimed at educational organizations, health facilities, businesses and governments and individuals;

2. Cooperation among and between state and local government, higher education and elementary-secondary education, businesses and health care providers to avoid duplication of effort and at the same time maximize the impact of efforts;

3. A rich history of using telecommunications to meet the education, information and commerce needs of the citizens through such agencies as NET;

4. Pioneers scouts with a vision willing to do what it takes to share that vision with the people of their state; and,

5. Forward thinking people who embrace change and the opportunities it brings.

In this paper we've mentioned some of the electronic pioneers in Nebraska . . . those who have joined forces to make a difference in their state in the information age. Like those who settled the great prairie over 150 years ago, they share a desire and a dedication to make a better life for those who come behind them. Are you an electronic pioneer in your state?

For further information contact:

Dr. Randall G. Bretz
Nebraska Educational Telecommunications
Box 83111
Lincoln, NE 68501-3111
rbretz@unl.edu

Jim Emal
University of Nebraska
201 Miller Hall
Lincoln, NE 68583-0713
ianr002@unlvm.unl.edu

Wayne Fisher
Nebraska Dept. of Education
301 Centennial Mall South
Lincoln, NE 68509
wfisher@nde4.nde.state.ne.us

Chris Hoy
Nebraska Dept. of Economic Development
301 Centennial Mall South
Lincoln, NE 68509-4666
choy@ded1.ded.state.ne.us

Craig Schroeder
Route 1 Box 8613
Hollbrook NE
craigs@csn.com

Gary Warren
Hamilton County Telecommunications
1001 12th. Street
Aurora, NE 68818
gdwarren@aol.com

Tim Willett
City of Papillion
123 E. 3rd.
Papillion, NE
twillett@monarch.papillion.ne.us